Technologies by CSIR

1470. SHRI R.P. GOENKA: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) what are the specific technologies developed by CSIR during the last five years;

(b) how many technologies have been patented during these years;

(c) how many of these technologies have been actually transferred for commercial exploitation; and

(d) the details of procedure adopted for selecting projects for research, co-ordination established with academics, industries and others?

THE MINISTER OF STATE IN THE DEPARTMENT OF SCIENCE AND TECHNOLOGY IN THE MINISTRY OF SCIENCE AND TECHNOLOGY (SHRI BACHI SINGH RAWAT): (a) CSIR has developed over 750 technologies during the last five years *i.e.* 1998—2003, which are specifically in the areas of Aerospace, Biology and Biotechnology, Chemicals, Drugs & Pharmaceuticals, Electronics and Instrumentation, Energy, Food & Food Processing, Housing & Construction, Leather, Machinery & Equipment and Minerals, Metals and Materials.

(b) The number of CSIR patents filed and granted in India and abroad during the last five years are:

Year	India		Foreign	
	Filed	Granted	Filed	Granted
1998-1999	310	134	112	38
1999-2000	377	112	199	35
2000-2001	410	117	452	56
2001-2002	410	341	580	86
2002-2003	421	166	728	189
TOTAL	1928	870	2071	404

(c) During the period, over 540 technologies have been licensed, including 150 licensed for the first time.

(d) CSIR has a two-tier system of project formulation and selection. At the laboratory level, there is Research Council chaired by an eminent external scientist/technologist, which comprises experts from academic, industry and government agencies/ departments. It advises on the formulation, selection and monitoring of research projects keeping in view national priorities and the potential opportunity areas. At the headquarter level all research projects from the laboratories are prioritized and taken up on the basis of zero based budgeting.

Cyclone forecasting

1471. SHRIMATI PREMA CARIAPPA: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether there is any mechanism to forecast cyclones in advance;

(b) if so, the details thereof and the number of days in advance cyclone forecasting is being done presently;

(c) whether Government have taken any steps to improve the accuracy of cyclone forecasts; and

(d) if so, the details thereof?

THE MINISTER OF STATE IN THE DEPARTMENT OF SCIENCE AND TECHNOLOGY IN THE MINISTRY OF SCIENCE AND TECHNOLOGY (SHRI BACHI SINGH RAWAT): (a) Yes, Madam.

(b) to (d) The India Meteorological Department (IMD) follows a four-stage warning system for tropical cyclone. A "Pre-cyclone Watch" is issued whenever a depression forms over the Bay of Bengal or Arabian Sea. This is followed by a "Cyclone Alert" issued 2-3 days in advance. In the third stage, Cyclone Warnings are issued 1-2 days in advance which specify the expected place and time of landfall of the tropical cyclone. The final stage is known as "Post-landfall Outlook" which is issued 12 hours in advance of landfall.

The accuracy of cyclone forecasts issued by IMD is generally on par with the accuracy of such forecasts issued by the tropical cyclone forecast services of other countries. However, with the